

HY-8 Culvert Analysis Report

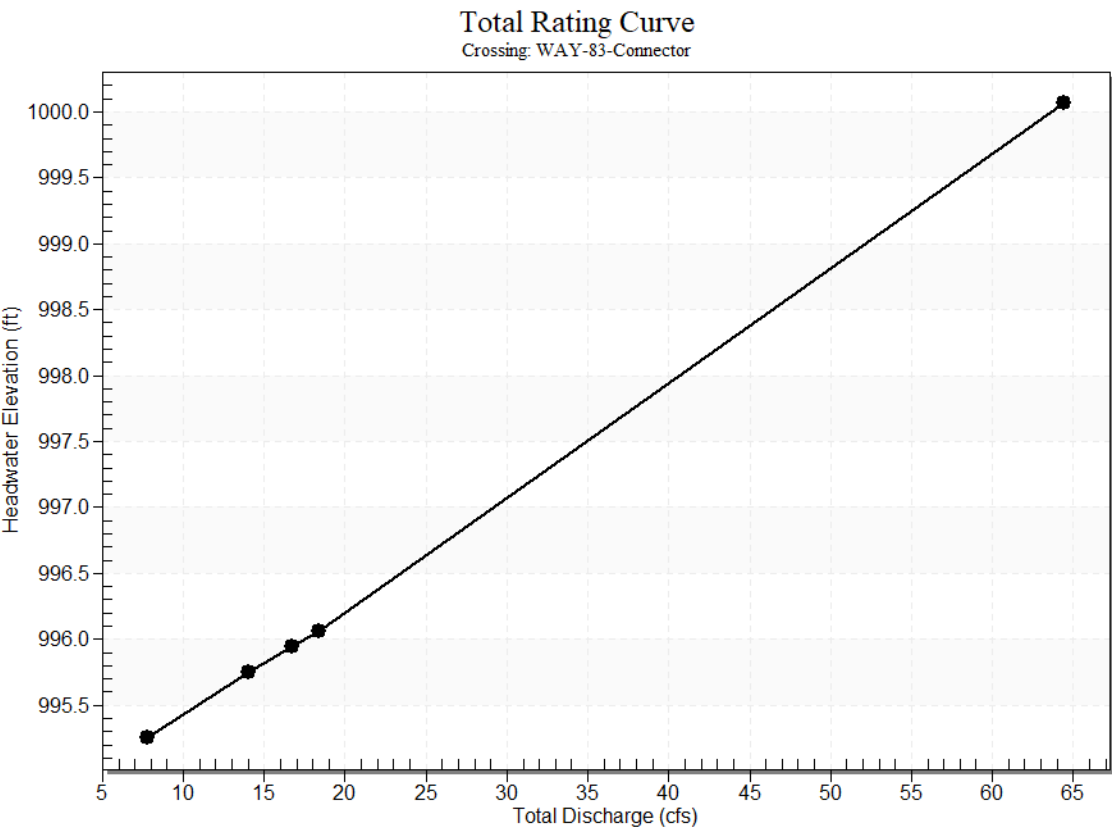
Crossing Discharge Data

Discharge Selection Method: Recurrence

Table 1 - Summary of Culvert Flows at Crossing: WAY-83-Connector

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Ex. 36" CMP Discharge (cfs)	Roadway Discharge (cfs)	Iterations
995.26	2 year	7.80	7.80	0.00	1
995.75	25 year	14.00	14.00	0.00	1
995.94	50 year	16.70	16.70	0.00	1
996.06	100 year	18.40	18.40	0.00	1
1000.03	Overtopping	62.16	62.16	0.00	Overtopping

Rating Curve Plot for Crossing: WAY-83-Connector



Culvert Data: Ex. 36" CMP

Table 1 - Culvert Summary Table: Ex. 36" CMP

Disc	Total	Culv	Head	Inle	Out	Fl	Nor	Crit	Ou	Tail	Outl	Tail
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Design Year Name	Discharge (cfs)	Return Discharge (cfs)	Water Elevation (ft)	Water Control Depth (ft)	Inlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Actual Depth (ft)	Water Table Depth (ft)	Water Depth (ft)	Return Velocity (ft/s)	Water Velocity (ft/s)
2 year	7.80 cfs	7.80 cfs	995.2 6	1.29	0.0*	1- S2 n	0.82	0.8 8	0.8 2	0.15	4.98	7.52
25 year	14.00 cfs	14.00 cfs	995.7 5	1.78	0.0*	1- S2 n	1.11	1.1 9	1.1 1	0.21	5.86	9.36
50 year	16.70 cfs	16.70 cfs	995.9 4	1.97	0.18 9	1- S2 n	1.23	1.3 1	1.2 3	0.23	6.15	9.99
100 year	18.40 cfs	18.40 cfs	996.0 6	2.09	0.33 1	1- S2 n	1.29	1.3 7	1.2 9	0.25	6.31	10.35

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

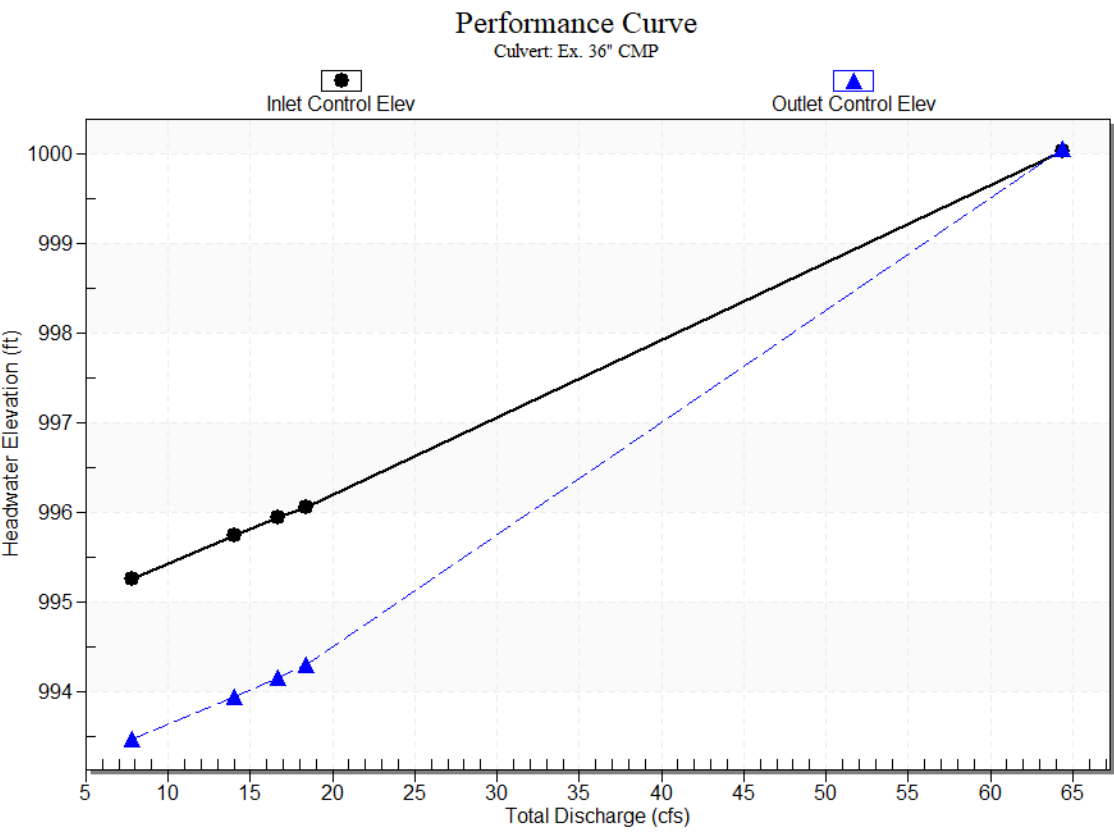
Inlet Elevation (invert): 993.97 ft,

Outlet Elevation (invert): 992.51 ft

Culvert Length: 84.21 ft,

Culvert Slope: 0.0173

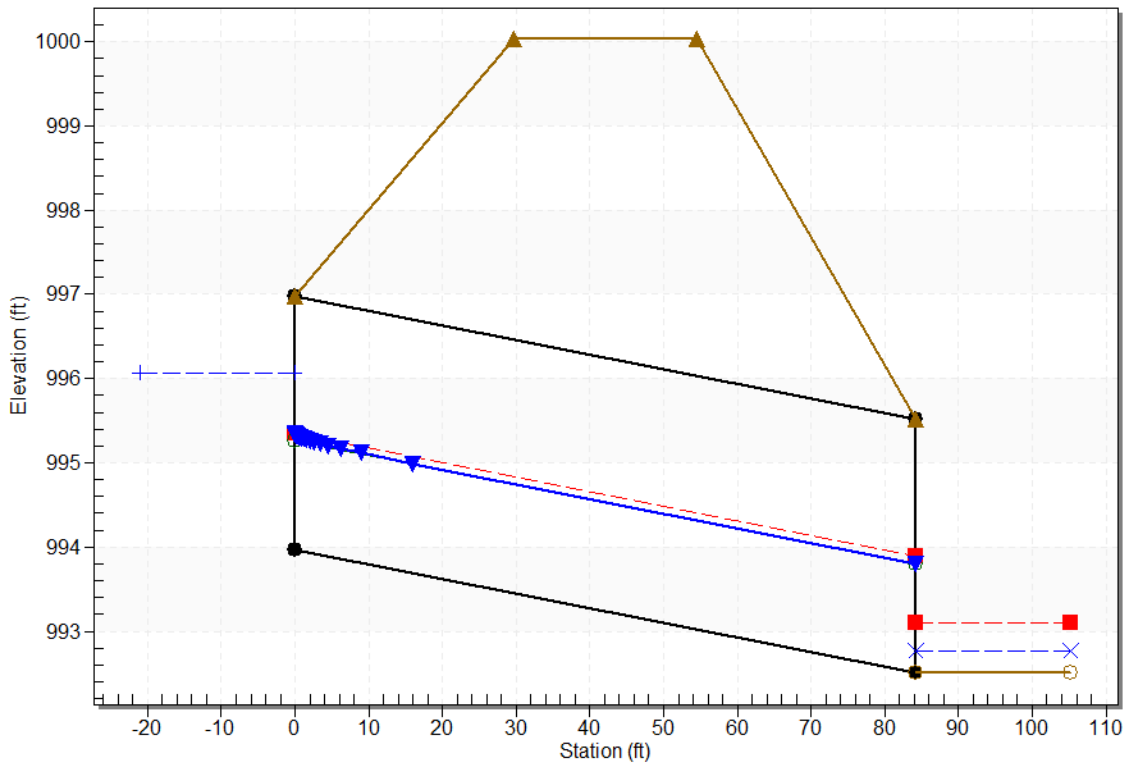
Culvert Performance Curve Plot: Ex. 36" CMP



Water Surface Profile Plot for Culvert: Ex. 36" CMP

Crossing - WAY-83-Connector, Design Discharge - 18.4 cfs

Culvert - Ex. 36" CMP, Culvert Discharge - 18.4 cfs



Site Data - Ex. 36" CMP

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 993.97 ft

Outlet Station: 84.19 ft

Outlet Elevation: 992.51 ft

Number of Barrels: 1

Culvert Data Summary - Ex. 36" CMP

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting (Ke=0.9)

Inlet Depression: None

Tailwater Data for Crossing: WAY-83-Connector

Table 2 - Downstream Channel Rating Curve (Crossing: WAY-83-Connector)

Flow (cfs)	Water Surface Elev (ft)	Velocity (ft/s)	Depth (ft)	Shear (psf)	Froude Number
7.80	992.66	0.15	7.52	0.46	3.51
14.00	992.72	0.21	9.36	0.66	3.70
16.70	992.74	0.23	9.99	0.73	3.75
18.40	992.76	0.25	10.35	0.77	3.79

Tailwater Channel Data - WAY-83-Connector

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 6.67 ft

Side Slope (H:V): 2.00 (:1)

Channel Slope: 0.0500

Channel Manning's n: 0.0120

Channel Invert Elevation: 992.51 ft

Roadway Data for Crossing: WAY-83-Connector

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 1000.03 ft

Roadway Surface: Paved

Roadway Top Width: 25.00 ft